Volunteer Lake Assessment Program Individual Lake Reports

PEARLY LAKE, RINDGE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,560	**Max. Depth (m):**	5.4	**Flushing Rate (yr^{-1})**	4.4
Surface Area (Ac.):	142	**Mean Depth (m):**	1.7	**P Retention Coef:**	0.59
Shore Length (m):	5,800	**Volume (m^3):**	1,357,500	**Elevation (ft):**	1006

TROPHIC CLASSIFICATION

Year	Trophic class
1990	EUTROPHIC
2004	EUTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

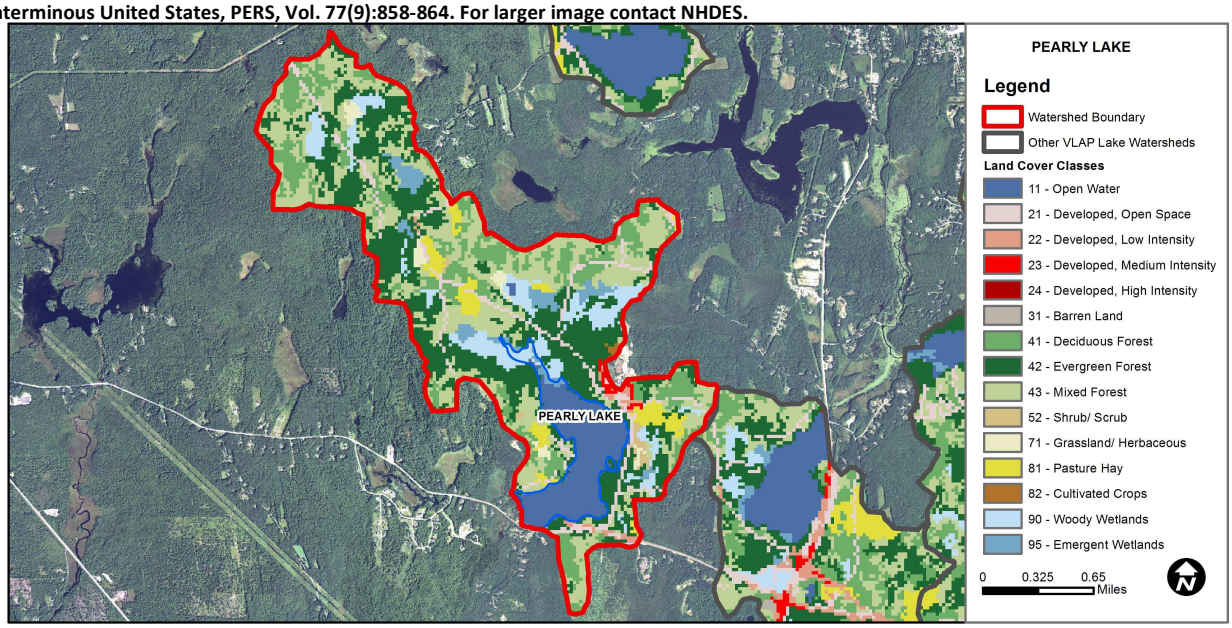
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).

BEACH PRIMARY CONTACT ASSESSMENT STATUS

PEARLY LAKE-PEARLY LAKE BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
PEARLY LAKE-PEARLY LAKE BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	8.94	Barren Land	0	Grassland/Herbaceous	1.1
Developed-Open Space	4.97	Deciduous Forest	14.3	Pasture Hay	3.43
Developed-Low Intensity	0.74	Evergreen Forest	27.77	Cultivated Crops	0.17
Developed-Medium Intensity	0.4	Mixed Forest	27.11	Woody Wetlands	7.59
Developed-High Intensity	0.01	Shrub-Scrub	0.61	Emergent Wetlands	2.86

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
PEARLY POND, RINDGE, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels increased as the summer progressed and were indicative of an algal bloom in July and August. However, historical trend analysis indicates a significantly decreasing (improving) chlorophyll level since monitoring began. We hope to see this continue!
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were slightly elevated in the deep spot, Mountain Rd. and Outlet stations. Rt. 119 is located along the southern end of the lake and road salting likely contributes to conductivity and chloride.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) and hypolimnetic (lower water layer) phosphorus levels increased greatly as the summer progressed and were much greater than the NH lake median. Deep spot phosphorus levels have increased annually since 2008. Historical trend analysis indicates epilimnetic phosphorus levels tend to fluctuate from year to year. Phosphorus was elevated in Mountain Rd. possibly due to low water levels and wetland impacts.
- **TRANSPARENCY:** Transparency decreased in July likely due to increased algal growth. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- **TURBIDITY:** Epilimnetic turbidity was elevated in July and August due to the increased algal growth. Hypolimnetic turbidity was elevated in July and August possibly due to algal bloom conditions, but also natural processes.
- **PH:** pH levels were lower than desirable and potentially critical to aquatic life.
- **RECOMMENDED ACTIONS:** To offset the internal phosphorus load from the hypolimnion, focus efforts on minimizing the phosphorus load from the surrounding watershed. Educate watershed residents on ways to reduce phosphorus loading from their properties through do it yourself stormwater management projects. Utilize DES' "NH Homeowner's Guide to Stormwater Management" as a reference. Keep up the great work!

Table 1. 2012 Average Water Quality Data for PEARLY POND

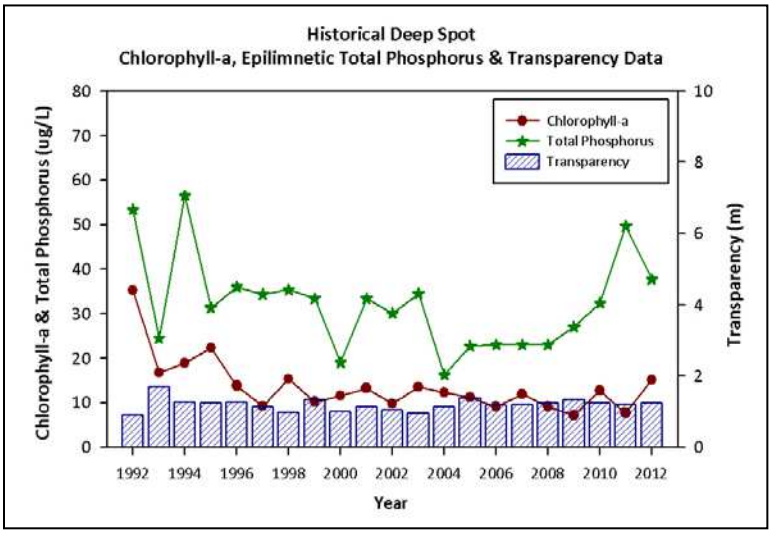
Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.	Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m	ntu	
						NVS		
Bower Inlet			3	15.4	19		1.04	5.34
Deep Epilimnion	1.43	15.1	22	100.1	38	1.23	3.44	5.83
Deep Hypolimnion				113.9	119		5.01	6.01
Mountain Rd			15	67.9	43		1.84	5.28
Outlet			25	96.8	21		1.88	6.13

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Improving	Data significantly decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.



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